

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application. Any claims that have been cancelled are to be considered cancelled without prejudice as to their resubmission:

**Listing of Claims:**

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Previously presented) The data analyzer according to claim 10, comprising a normalization means for normalizing the indexed data.
6. (Original) The data analyzer according to claim 5, wherein the normalization means is configured to process the indexed data prior to processing by the common characteristic removal module.
7. (Original) The data analyzer according to claim 5, wherein the normalization means is configured to process the indexed data after processing by the common characteristic removal module.

8. (Original) The data analyzer according to claim 5, wherein the normalization means comprises means for normalizing a member of the set to the standard deviation of the member.

9. (Original) The data analyzer according to claim 5, wherein the normalization means comprises means for normalizing a member of the set to the maximum value of the member.

10. (Previously presented) A data analyzer for use with a pattern classifier to compress a set of indexed data, comprising a data removal module for identifying and removing portions of the set of indexed data having insufficient discriminatory power; wherein the data removal module comprises a noise removal module comprising means for identifying and removing noise portions of the set of indexed data; wherein the data removal module comprises a common characteristic removal module comprising means for identifying and removing common characteristics of the set of indexed data; and wherein the set of indexed data comprises indexed control-data and the common characteristic removal module comprises means for analyzing the indexed control-data to identify the portions of the set of indexed data that contain common characteristics.

11. (Previously presented) The data analyzer according to claim 10, wherein the common characteristic removal module comprises a threshold means for identifying the portions of the indexed data that contain common characteristics.

12. (Previously presented) The data analyzer according to claim 11, wherein the threshold means calculates the threshold relative to a statistic of the set of indexed data.

13. (Previously presented) The data analyzer according to claim 11, wherein the

threshold means comprises means for removing an index from the indexed data having a variance higher than the threshold value.

14. (Currently amended) A data analyzer for use with a pattern classifier to compress a set of indexed data, comprising a data removal module for identifying and removing portions of the set of indexed data having insufficient discriminatory power; wherein the data removal module comprises a noise removal module comprising means for identifying and removing noise portions of the set of indexed data; wherein the data removal module comprises a common characteristic removal module comprising means for identifying and removing common characteristics of the set of indexed data; ~~and~~ wherein the noise removal module comprises a threshold means for identifying the portions of the indexed data that contain noise; and wherein the set of indexed data comprises indexed control-data and the common characteristic removal module comprises means for analyzing the indexed control-data to identify the portions of the set of indexed data that contain common characteristics.

15. (Previously presented) The data analyzer according to claim 14, wherein the threshold means calculates the threshold relative to a variance of the set of indexed data.

16. (Previously presented) The data analyzer according to claim 14, wherein the threshold means comprises means for removing an index from the indexed data having a variance lower than the threshold value.

17. (Previously presented) The data analyzer according to claim 14, wherein the common characteristic removal module comprises means for decreasing the cardinality of the set of indexed data.

18. (Original) The data analyzer according to claim 17, wherein the means for

reducing cardinality comprises means for removing a portion of the data from a member of the indexed set.

19. (Previously presented) The data analyzer according to claim 17, wherein the noise removal module comprises means for decreasing the cardinality of the set of indexed data.

20. (Original) The data analyzer according to claim 19, wherein the means for reducing cardinality comprises means for removing a portion of the data from a member of the indexed set.

21. (Currently amended) The data analyzer according to any one of claims [[4]] 5-20, comprising:

a feature extraction module for extracting a feature portion from the compressed indexed data to provide a set of feature indexed data; and

a classification module for classifying the feature indexed data to provide pattern classification of the set of indexed data.

22. (Previously presented) A data analyzer for use with a pattern classifier to compress a set of indexed data having common characteristics and noise, comprising:

- a. means for determining a common characteristic threshold for the indexed data set;
- b. means for removing indices having an ensemble statistic higher than the common characteristic threshold value in order to provide a retained dataset, wherein the ensemble statistic is a statistic taken from across a set of spectra;
- c. means for calculating the ensemble statistic of each retained index in the retained dataset;
- d. means for determining a noise threshold;
- e. means for removing indices from the retained dataset wherein the ensemble

statistic is lower than a noise threshold value; and

- f. means for normalizing the indexed data.

23. (Original) The data analyzer according to claim 22, wherein the normalization means is configured to process the indexed data prior to processing by the common characteristic threshold means.

24. (Original) The data analyzer according to claim 22, wherein the normalization means is configured to process the indexed data after processing by the common characteristic threshold means.

25. (Original) The data analyzer according to claim 22, wherein the normalization means comprises means for normalizing a member of the set to the standard deviation of the member.

26. (Original) The data analyzer according to claim 22, wherein the normalization means comprises means for normalizing a member of the set to the maximum value of the member.

27. (Canceled).

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled).

33. (Previously presented) The method according to claim 37, wherein the step of normalizing is performed prior to the step of identifying and removing common characteristics.

34. (Previously presented) The method according to claim 37, wherein the step of normalizing is performed after the step of identifying and removing common characteristics.

35. (Previously presented) The method according to claim 37, wherein the step of normalizing comprises normalizing a member of the set to the standard deviation of the member.

36. (Previously presented) The method according to claim 37, wherein the step of normalizing comprises normalizing a member of the set to the maximum value of the member.

37. (Currently amended) A method for analyzing a set of indexed data that includes obtaining from a collection of spectra obtained via mass spectrometry to compress the set of data, comprising the steps of identifying and removing portions of the set of data having insufficient discriminatory power, thereby providing a set of compressed indexed data; wherein the step of identifying and removing portions of the set of data comprises identifying and removing noise portions of the set of indexed data; wherein the step of identifying and removing portions of the set of data comprises identifying and removing common characteristics of the set of data; comprising the step of normalizing the indexed data; and wherein the set of indexed data comprises indexed control-data and the step of identifying and removing common characteristics comprises analyzing the indexed control-data to identify the portions of the set of indexed data that contain common characteristics.

38. (Previously presented) The method according to claim 37, wherein the step of identifying and removing common characteristics comprises identifying the portions of the indexed data that contain common characteristics based on comparison to a threshold value.

39. (Canceled)

40. (Previously presented) The method according to claim 38, wherein the step of identifying and removing common characteristics comprises removing an index from the indexed data having variance higher than the threshold value.

41. (Currently amended) A method for analyzing a set of indexed data that includes obtaining from a collection of spectra obtained via mass spectrometry to compress the set of data, comprising the steps of identifying and removing portions of the set of data having insufficient discriminatory power, thereby providing a set of compressed indexed data; wherein the step of identifying and removing portions of the set of data comprises identifying and removing noise portions of the set of indexed data; wherein the step of identifying and removing portions of the set of data comprises identifying and removing common characteristics of the set of data; ~~and~~ wherein the step of identifying and removing the noise portions comprises identifying the portions of the indexed data that contain noise based on comparison to a threshold value; and wherein the set of indexed data comprises indexed control-data and the step of identifying and removing common characteristics comprises analyzing the indexed control-data to identify the portions of the set of indexed data that contain common characteristics.

42. (Canceled)

43. (Previously presented) The method according to claim 41, wherein the step of

identifying and removing the noise portions comprises removing an index from the indexed data having a variance lower than the threshold value.

44. (Previously presented) The method according to claim 41, wherein the step of identifying and removing common characteristics comprises decreasing the cardinality of the set of indexed data.

45. (Original) The method according to claim 44, wherein reducing cardinality comprises removing a portion of the data from a member of the indexed set.

46. (Previously presented) The method according to claim 41, wherein the step of identifying and removing common characteristics comprises computing a variance of a set of control spectra.

47. (Previously presented) The method according to claim 41, wherein the step of identifying and removing noise portions comprises computing a variance of a set of control spectra.

48. (Previously presented) The method according to claim 41, wherein the step of identifying and removing the noise portions comprises decreasing the cardinality of the set of indexed data.

49. (Original) The method according to claim 48, wherein reducing cardinality comprises removing a portion of the data from a member of the indexed set.

50. (Previously presented) The method according to any one of claims 33-38, 40-41 and 43-49, comprising the steps of:



extracting a feature portion from the compressed indexed data to provide a set of feature indexed data; and

classifying the feature indexed data to provide pattern classification of the set of indexed data.

51. (Canceled)

52. (Currently amended)

A method for classifying a set of indexed data that includes obtaining a collection of control spectra obtained via mass spectrometry~~which include a set of control spectra,~~ comprising the steps of :

a. calculating an ensemble statistic at each index in the control spectra obtained via mass spectrometry~~which~~, wherein the ensemble statistic is a statistic taken from across a set of spectra;

b. identifying those indices at which the ensemble statistic exceeds a first selected threshold;

c. removing the identified indices from all spectra in the set of indexed data to provide a set of compressed indexed data;

d. calculating an ensemble statistic at each index of the compressed indexed data;

e. removing all indices from each compressed spectrum that have an ensemble statistic that is lower than a second selected threshold value to provide a set of reduced indexed data;

f. extracting a feature portion of each of the reduced indexed data to provide a set of feature spectra;

g. classifying the set of feature spectra into clusters; and

wherein the step of calculating the ensemble statistic at each index in the control spectra comprises computing an ensemble variance of the control spectra.

53. (Currently amended)

A method for classifying a set of indexed data that includes obtaining ~~which include~~ a set of control spectra obtained via mass spectrometry ~~which~~, comprising the steps of :

a. calculating an ensemble statistic at each index in the control spectra obtained via mass spectrometry ~~which~~, wherein the ensemble statistic is a statistic taken from across a set of spectra;

- d. identifying those indices at which the ensemble statistic exceeds a first selected threshold;
- e. removing the identified indices from all spectra in the set of indexed data to provide a set of compressed indexed data;
- d. calculating an ensemble statistic at each index of the compressed indexed data;
- e. removing all indices from each compressed spectrum that have an ensemble statistic that is lower than a second selected threshold value to provide a set of reduced indexed data;
- f. extracting a feature portion of each of the reduced indexed data to provide a set of feature spectra;
- g. classifying the set of feature spectra into clusters; and

wherein the step of calculating the ensemble statistic at each index of the compressed indexed data comprises computing an ensemble variance of the compressed indexed data.